

**ABSTRACT**

Cooled and oxygenated blood is shunted from the proximal aorta into the open ends of intercostal arteries severed during thoracoabdominal aortic surgery to prevent or minimize the effects of spinal ischemia. This cooled perfusion can be accomplished with a variety of perfusion assemblies. For instance, a single vessel perfusion assembly can be employed to shunt the oxygenated blood from the aorta to the lumen of a single intercostal artery. Cooled perfusion can also be performed with a branched multiple vessel perfusion assembly, which includes a branched conduit comprising a common portion and branch portions. In operation, oxygenated blood flows from the aorta into the inflow cannula, through the blood flow conduit, out of the one or more outflow cannula, and into the intercostal arteries.